LESSON PLAN

PART I
COVER SHEET

LESSON TITLE: M8 and M9 Paper

TRAINING METHOD: Demonstration - Performance

REFERENCES: T.O. 11H2-14-5-1, Paper, Chemical Agent, VGH, ABG-M8
T.O. 00-20K-1, Inspection and Control of USAF Shelf-Life
T.O. 14P3-1-141, Groundcrew Chem-Defense Ensemble
T.O. 11H2-2-21, Paper, Chemical Agent Detector:M9

AIDS AND HANDOUTS: PIN 606042DF (F Block), F-1 - M8 and M9 Paper
Attachment 1 - Illustration of Positive Indications on M8 and M9 Chemical Detection Paper
Attachment 2 - Placement of M9 paper on the Groundcrew Chem-Defense Ensemble
M8 and M9 Paper
Masking Tape
Locally procured simulants

LESSON OBJECTIVE: Given an explanation of the purpose, description, hazards, and operations of M8 and M9 paper, the student must properly perform all of the task steps listed below. Also, the student, during the final course exam, must correctly answer questions that demonstrate mastery of at least three of the samples of behavior listed below:

TASK STEPS:
1. Inspect and determine serviceability of M8 and M9 paper.

2. Perform liquid chemical agent monitoring using M8 and M9 paper.

SAMPLES OF BEHAVIOR:
1. State the purpose of M8 and M9 paper.

2. Explain the active and passive uses of M8 and M9 paper.

3. Identify the positive chemical indications for M8 paper.

4. Identify the positive chemical indications for M9 paper.

ORGANIZATIONAL PATTERN: Topical

Supersedes DPTP F1, 15 Jul 91
OPR: HQ AFCESA/CEXR (MSgt S. J. Reed) Certified by: HQ AFCESA/CEX (Lt. Col R. L. Turner)
Pages: 21/Distribution: F

SUGGESTED COURSE(S) OF INSTRUCTION: Chemical/Biological Warfare Defense

STRATEGY: Identify M8 and M9 paper at the beginning of the presentation. Stress that M8 and M9 paper are the student's tools for detecting chemical warfare agents, and they are quick and easy to use. Explain to the students they must use gloves when handling M8 and M9 paper because the dye in the detector paper can cause cancer. Use simulants to enhance your demonstration of positive results for the M8 and M9 paper and show how to blot with them.

LESSON OUTLINE:

MAIN POINT 1. PURPOSE OF M8 AND M9 PAPER

MAIN POINT 2. DESCRIPTION OF M8 AND M9 PAPER
- A. M8 Paper
- B. M9 Paper

MAIN POINT 3. HAZARD AND PRECAUTIONS
- A. Hazards
- B. Precautions

Main Point 4. THEORY OF OPERATION

Main Point 5. USE OF M8 PAPER
- A. Active Method
- B. Passive Method
- C. Positive Indication

Main Point 6. USE OF M9 PAPER
- A. Preparation for Use
- B. Active Use
- C. Passive Use
- D. M8 and M9 Placement on the Groundcrew Chem-Defense Ensemble
- E. Positive Identification

Main Point 7. INSPECTION AND STORAGE OF M8 AND M9 PAPER
- A. Inspection
- B. Storage

PART II
TEACHING PLAN
INTRODUCTION

ATTENTION: With all the different types of chemicals that could be used, your ability to detect and identify them could be the difference between life and death.

MOTIVATION: By knowing how to properly use M8 and M9 paper, you can increase your chances of survival.

OVERVIEW: We will discuss:

⇒ The purpose and description of M8 and M9 paper.
⇒ The hazard and precautions associated with M8 and M9 paper.
⇒ Theory of operation.
⇒ How to use M8 and M9 paper.
⇒ Inspection and storage of M8 and M9 paper.

TRANSITION: Now let's get started.

BODY

MAIN POINT 1. PURPOSE OF M8 AND M9 PAPER	M8 and M9 paper provide a quick and easy method of making an initial, tentative assessment of the presence of certain liquid agents.
MAIN POINT 2. DESCRIPTION OF M8 AND M9 PAPER	Since M8 and M9 paper are different, let's go over the description of each of them.
A. M8 PAPER	A. M8 paper comes with 25 sheets of chemically treated tan colored paper bound into a cardboard cover to form a booklet. Each page has perforations down the middle to provide a total of 50 sheets. The front cover contains a color comparison chart used to confirm which agent(s) were used. General instructions for use are on the back cover.
B. M9 PAPER	B. M9 paper comes in a roll 2 1/2 inches wide and 30 feet long. One side is coated with adhesive, covered with a protective paper strip. Just peel the paper strip from the tape when you want to apply it to another surface. The M9 paper is contained in a chemically treated cardboard dispenser with a cutting edge and general instructions. A reusable plastic bag, used to stow the M9 paper after use, comes in the shipping bag.

TRANSITION:	When handling or using the M8 and M9 paper, there is a hazard and certain precautions that you must be aware of. Let's go over them now.
MAIN POINT 3. HAZARD AND PRECAUTIONS	First, let's discuss the health hazard associated with the M8 and M9 paper.
A. HAZARD	A. The detector paper dye in the M8 and M9 paper may cause cancer. However, since very little is used, the risk is small especially when you observe common sense precautions.
B. PRECAUTIONS	B. Precautions that you must be mindful of are:
AVOID EYE CONTACT	⇒ Avoid direct contact with the dye and always wear gloves when handling M8 and M9 paper.
KEEP AWAY FROM MOUTH	⇒ Never allow the paper to contact your mouth.
WASH OFF THE SKIN	⇒ If the paper touches your bare skin, wash the affected area with soap and water to prevent the possibility of absorbing the dye.

M8/M9 IS NOT A SOLE INDICATOR	⇒ M8 and M9 paper are subject to false positive indications caused by many substances. Use them to help confirm the presence of chemical agents, but never use the test results as the sole indicator that liquid chemical agents are or are not present.
DO NOT RUB, SCRUB, OR SCUFF	⇒ Do not scrub, scuff, or rub the M8 and M9 paper on the suspected contaminated surface, because a false indication may result.
PROPERLY STORE PAPER	⇒ When the M8 or M9 paper is not in use, place it in the plastic storage bag to prevent contamination or wetting.
DO NOT USE COLORED LENSES AT NIGHT	⇒ Do not check M8 or M9 paper with a colored light, because you will not see liquid chemical agent red spots.
KEEP AWAY FROM GREASE	⇒ M9 paper will not stick to dirty, oily, or greasy surfaces.
KEEP AWAY FROM HOT SURFACES	⇒ Keep M8 or M9 paper away from hot surfaces. Aside from the possibility of catching fire, heat may turn the M9 paper red and cause a false reading.
TRANSITION:	You may be wondering how this paper works? Let's discuss that now.

MAIN POINT 4. THEORY OF OPERATION

When the chemically treated paper contacts liquid agents, the area contacted will change color. This color change is used to make an initial assessment of the presence of liquid chemical agents.

The M8 paper will detect most liquid nerve and blister agents.

However, the M9 paper only shows the presence of liquid chemical agents, it does not tell what type.

ALLOW SEVERAL MINUTES FOR COLOR CHANGE IN COLD WEATHER

At temperatures above 32^{o} degrees Fahrenheit, M8 and M9 paper will respond immediately. Around temperatures of 32^{o} degrees Fahrenheit and below, you must allow several minutes before you get a response.

M8 and M9 paper will work in rain, snow, or sleet; however, if they become saturated with water, you must replace them.

TRANSITION:

Now let's talk about how to use M8 paper.

MAIN POINT 5. USE OF M8 PAPER

M8 paper may be used either actively or passively. Active detection is when you go out looking for the contamination. Defensive detection is when you place detection paper somewhere and monitor it after suspected contamination.

A. ACTIVE METHOD	A. When using the M8 paper actively: ⇒ Remove the booklet from the plastic wrapping paper. Retain the plastic wrapper for storage after use. ⇒ Remove a sheet of M8 paper and dip or blot the paper into the liquids or blot the area to be tested. ⇒ Observe the paper for a color change. Use the comparison chart located inside the front cover of the M8 paper booklet.
B. PASSIVE METHOD	B. To use M8 paper passively: ⇒ Remove the booklet from the plastic wrapping paper. Retain the plastic wrapper for storage after use. ⇒ Remove a sheet of M8 paper. ⇒ Secure it to objects, such as buildings, vehicles, etc., that would receive contamination. ⇒ Periodically inspect the paper for color changes.
C. POSITIVE INDICATION	C. Indications that a liquid nerve or blister agent is present are:

INSTRUCTOR'S NOTE: Use Attachment 1, in Part IV, to illustrate POSITIVE INDICATIONS on the M8 and M9 paper.

GOLD = G AGENT

⇒ If the paper turns gold (yellow color), you have a nerve (G) agent.

GREEN = V AGENT

⇒ If the paper turns dark green, you have a nerve (V) agent.

PINK/RED = H AGENT

⇒ If the paper turns pink or red, you have a blister (H) agent.

RED/BROWN = G AGENT

⇒ If the paper turns red brown, it is an indication that a certain nerve (G) agent is present. This positive indication is not represented on the color comparison chart inside the cover.

TRANSITION:

Now let's talk about using M9 paper.

MAIN POINT 6. USE OF M9 PAPER

There are certain procedures you must follow when using M9 paper:

A. PREPARATION FOR USE

A. First prepare the M9 paper for use.

⇒ Tear open the shipping bag at the notch and remove the paper dispenser and plastic storage bag. Save the plastic storage bag and throw the shipping bag away.

⇒ After the paper dispenser is removed from the shipping bag, immediately write or stamp the current date on the dispenser. This date will be used to determine the useful life of the detector paper.

⇒ Remove and dispose the cardboard cutter edge protector and remove the detector paper from the dispenser.

⇒ Thread the paper strip through the slot on the cardboard dispenser by applying a little pressure with your thumb or finger.

⇒ Hold the detector paper strip between your forefinger and thumb on one hand and the olive drab paper between your forefinger and thumb of your other hand. Simultaneously pull the detector paper and olive drab paper strip.

⇒ After you have separated the paper strips, cut the detector paper half way by pulling the strip down on the cutting edge.

⇒ Lift the detector paper strip off the cutting edge then pull both strips out a little further (about 1 inch).

⇒Tear through the remaining half of the detector paper strip.

⇒Tear off the olive drab paper strip but leave enough sticking out to be ready for your next use.

TRANSITION: M9 paper can also be used actively and passively.

B. ACTIVE USE

B. To use the M9 paper actively:

⇒Remove the desired length of paper.

⇒Peel the paper backing from the adhesive and fold the M9 paper backing to form a tab.

⇒Dip or blot the area to be tested and observe for positive chemical indication.. Do not "rub" the paper against any surface.

C. PASSIVE USE

C. To use the M9 paper passively:

⇒Remove the desired length of M9 paper, peel the protective paper and apply the adhesive side to any object likely to receive contamination.

⇒Fold the M9 paper adhesive backing to form a tab for easy removal.

TRANSITION:	One form of passive use is to wear the M9 paper on the groundcrew chem-defense ensemble.
D. M8 AND M9 PLACEMENT ON THE GROUNDCREW CHEM-DEFENSE ENSEMBLE	D. The paper is placed at specific locations on the ensemble.
	INSTRUCTOR'S NOTE: Use Attachment 2, in Part IV, to show the placement of M9 paper on the groundcrew chem-defense ensemble.
E. POSITIVE IDENTIFICATION	E. If spots or streaks on your paper appear pink, red-brown, red-purple, or any shade of red, you have detected a liquid chemical agent.
TRANSITION:	Now let's talk about inspecting and storing M8 and M9 paper.
MAIN POINT 7. INSPECTION AND STORAGE OF M8 AND M9 PAPER	To ensure M8 and M9 paper are serviceable, you must know how to inspect as well as store them.
A. INSPECTION	A. When inspecting your M8 and M9 paper:

M8 PAPER

⇒Check your M8 paper for any signs of wetting by any liquid (wrinkles, discoloration, etc.), dirty, damaged or out of plastic bag. If found, discard paper. Shelf-life for M8 paper is indefinite.

M9 PAPER

⇒Before using your M9 paper, check the shelf life. Shelf life for M9 paper is three years, non-extendible from the date of manufacture. Also, check the useful life date written on the dispenser. The useful life of the M9 paper once removed from the shipping bag is:

1) 1 year in a temperate zone.

2) 2 years in a frigid zone.

3) Approximately 1 year in tropical or desert regions.

⇒Check the cardboard dispenser for damage. If the dispenser is crushed, wet, or cutting edge is missing, obtain new paper.

⇒Check the detector paper for any marks, spots, tears, streaks, creases, or change in color. If any of these conditions exist, obtain new paper.

⇒Make sure the adhesive backing is still sticky by folding a 2 inch piece of detector paper adhesive side to adhesive side. Try pulling the paper apart. If you can pull them apart easily, obtain new paper.

B. STORAGE

B. Do not store M8 and M9 paper in any area where the temperature will exceed 51o degrees Celsius (125^{o} Fahrenheit) because the paper dye will deteriorate rapidly. Also, do not store the paper where moisture is a problem.

CONCLUSION

SUMMARY: Today we have discussed:

- ⇒ The purpose and description of M8 and M9 paper.
- ⇒ The hazard and precautions associated with M8 and M9 paper.
- ⇒ Theory of operation.
- ⇒ How to use M8 and M9 paper.
- ⇒ Inspection and storage of M8 and M9 paper.

REMOTIVATION: Knowing how to detect chemicals with the M8 and M9 paper increases your chances of surviving a chemical attack using liquid agents.

CLOSURE: This concludes this lesson.

TRANSITION: (Develop locally to transition to the next topic.)

PART III
EVALUATION
STUDENT PERFORMANCE STANDARDS

1. Inspect and determine serviceability of M8 and M9 paper.

2. Perform liquid chemical agent monitoring using M8 and M9 paper.

TEST ITEMS

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1. LESSON OBJECTIVE: State the purpose of M8 and M9 paper.

QUESTION: (TRUE or FALSE)

M8 and M9 paper provides a quick and easy method of making an initial, tentative assessment of liquid chemical agents.

a. True
b. False

KEY: a

REFERENCE: Main Point 1

2. LESSON OBJECTIVE: Explain the active and passive uses of M8 and M9 paper.

QUESTION: (MULTIPLE CHOICE)

Which of the following is NOT an active or passive use of M8 or M9 Paper?

a. Rub M8 paper on the surface to be tested.
b. Dip or blot M8 paper in the liquid to be tested.
c. Observe or periodically inspect M8 or M9 paper for positive indication.
d. Secure or stick M8 or M9 paper to any object likely to receive contamination.

KEY: a

REFERENCE: Main Points 5 and 6

3. LESSON OBJECTIVE: Identify the positive chemical indications for M8 paper.

QUESTION: (MATCHING)

Match the positive color indication to it's correct chemical agent for M8 paper.

1. Red brown	a. Blister (H) agent
2. Dark green	b. Nerve (G) agent
3. Pink or Red	c. Nerve (V) agent
4. Gold	d. Certain nerve (G) agents

KEY: 1-d, 2-c, 3-a, 4-b

REFERENCE: Main Point 5

4. LESSON OBJECTIVE: Identify the positive chemical indications for M9 paper.

QUESTION: (TRUE or FALSE)

Positive indications for M9 paper is when pink, red-purple, red-brown, or any shade of red spots appear.

a. True
b. False

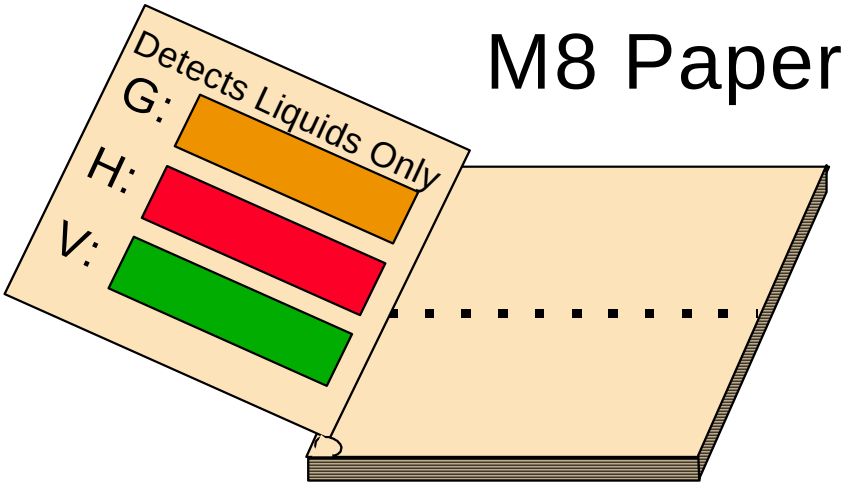
KEY: a

REFERENCE: Main Point 6

PART IV
RELATED MATERIALS

ATTACHMENT 1 - Illustration of Positive Indications on M8 and M9 Chemical Detection Paper
ATTACHMENT 2 - Placement of M9 paper on the Groundcrew Chem-Defense Ensemble

M8 Paper

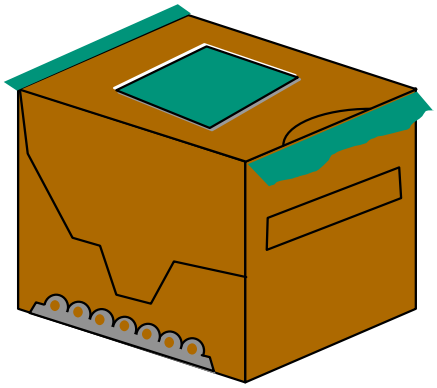


GOLD = Nerve

RED = Blister

GREEN = Nerve

A red-brown color indicates a positive (G) nerve agent on the M8 Paper. It is NOT shown on the color chart.



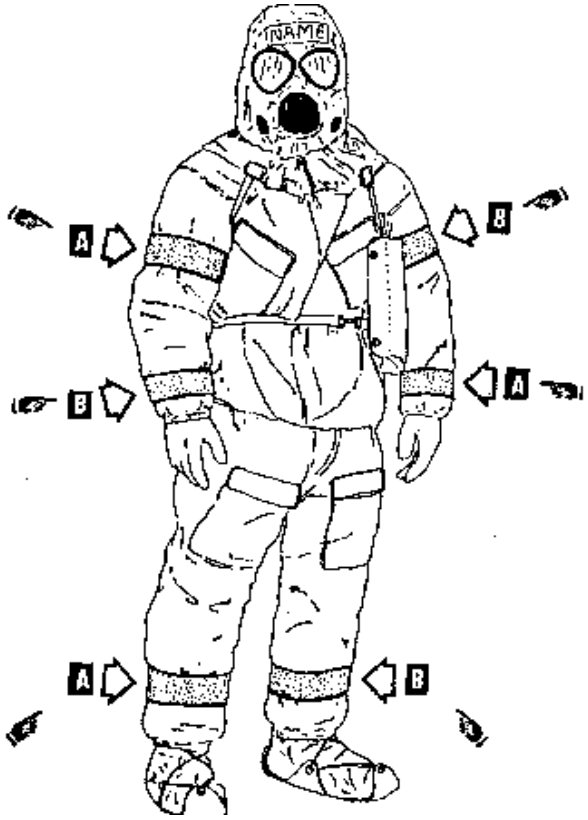
If spots or streaks on your paper appear pink, red-brown, red-purple, or any shade of red, assume you have been exposed to a ***liquid chemical agent.***

M9 Paper

Attachment 1 - Illustration of Positive Indications on M8 and M9 Chemical Detection

Paper

M9 Paper on the Ground Crew Ensemble



- **Place M9 paper on the:**
  - **Upper Arm**
  - **Lower Arm**
  - **Lower Leg**
- Alternate from one side to the other

Attachment 2 - Placement of M9 paper on the Groundcrew Chem-Defense Ensemble

TRAINING PACKAGE COMMENT REPORT

RTP #	RTP DATE

To get an *immediate response* to your questions concerning subject matter in this Readiness Training Package (RTP), call the author (listed on the front cover) or the Contingency Training Section at DSN 523-6160 between 0700-1600 (CT), Monday through Friday. Otherwise, write, fax, or E-mail the author to make comments, suggestions, or point out technical errors in the area of: references, body information, performance standards, test questions, and attachments.

NOTE: Do not use the Suggestion Program to submit corrections for printing or typographical errors.

Comments:_____

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HQ AFCESA/CEX FAX #: DSN 523-6383
Internet: reeds@afcesa.af.mil
HQ AFCESA Home Page: http://www.afcesa.af.mil

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OFFICIAL BUSINESS

HQ AFCESA/CEXR
ATTN: MSGT REED
139 BARNES DRIVE SUITE 1
TYNDALL AFB FL 32403-5319